

## Nuclear Energy

**Note 1.** In 1997 EIA undertook a major revision of Table 9.1 to more fully describe the history of the U.S. commercial nuclear power industry. The time frame was extended back to the birth of the industry in 1953, and the data categories were revised for greater relevance to current industry conditions and trends. To acquire the data for the revised categories it was necessary to develop a reactor unit database employing different sources than those used previously for Table 9.1 and still used for Table 9.2.

The data in Table 9.1 apply to commercial nuclear power units, which means that the units contributed power to the commercial electricity grid whether or not they were owned by an electric utility. A total of 259 units ever ordered was identified. Although most orders were placed by electric utilities, several units are or were ordered, owned, and operated wholly or in part by the Federal Government, including BONUS (Boiling Nuclear Superheater Power Station), Elk River, Experimental Breeder Reactor 2, Hallam, Hanford N, Piqua, and Shippingport.

A reactor is generally defined as operable in Table 9.1 while it possessed a full-power license from the Nuclear Regulatory Commission or its predecessor the Atomic Energy Commission, or equivalent permission to operate, at the end of the year. The definition is liberal in that it does not exclude units retaining full-power licenses during long, non-routine shutdowns. For example:

In 1985 the five then-active Tennessee Valley Authority units (Browns Ferry 1, 2, and 3 and Sequoyah 1 and 2) were shut down under a regulatory forced outage. Browns Ferry 1 remains shut down and has been defueled, while the other units were idle for several years, restarting in 1991, 1995, 1988, and 1988, respectively. All five units are counted as operable during the shutdowns. Brown's Ferry 1 is the only one of the five TVA plants that has not returned to service. Because it is still fully licensed to operate, it continues to meet the definition of operable.

Shippingport was shut down from 1974 through 1976 for conversion to a light-water breeder reactor, but is counted as operable until its retirement in 1982.

Calvert Cliffs 2 was shut down in 1989 and 1990 for replacement of pressurizer heater sleeves but is counted as operable during those years.

Exceptions to the rule are Shoreham and Three Mile Island 2. Shoreham was granted a full-power license in April 1989, but was shut down two months later and never restarted. In 1991, the license was changed to Possession Only. Although not operable at the end of the year, Shoreham is treated as operable during 1989 and shut down in 1990, because counting it as operable and shut down in the same year would introduce a statistical discrepancy in the tallies. A major accident closed Three Mile Island 2 in 1979, and although the unit retained its full-power license for several years, it is considered permanently shut down since that year.

**Note 2.** Net summer capacities were first collected on Form EIA-860 for 1984. Units not assigned a net summer capacity rating by the utility were given an estimated rating by use of a statistical relationship between installed nameplate capacity and net summer capacity for each prime mover. To estimate net summer capacity for 1949-1984, two methods were used. For each prime mover except nuclear and "other," net summer capacity estimates were calculated in two steps. First, the unit capacity values reported on Form EIA-860 and the unit start dates contained in the 1984 Generating Unit Reference File (GURF) were used to compute preliminary aggregate estimates of annual net summer capacity and installed nameplate capacity. These preliminary estimates were obtained by aggregating unit capacity values for all units in service during a given year. Next, the ratio of the preliminary capacity to nameplate estimate was computed for each year and multiplied by the previously published installed nameplate capacity values to produce the final estimates of net summer capacity. The net summer capacity data for nuclear and "other" units were used directly from the 1984 GURF for all years. Historical aggregates were then developed by use of the unit start dates on the GURF.

Historical capacity has also been modified to estimate capacity based upon the operable definition, by assuming that non-nuclear generating units became operable between 1 and 4 months prior to their commercial operation dates, depending upon the prime mover and time period. The actual operable dates for nuclear units were used. It should be noted that nonutility net summer capacities, which are not currently collected for nonutilities, are estimated based on installed nameplate capacity data.